

DEPARTMENT OF FISH AND GAME

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July 26, 1999

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**SUBJECT: Parcel E Draft Validation Study Report, Hunters Point Shipyard
PCA: 60120 Project: NTX403**

Dear Mr. Powell

In the role of a Trustee of California's Natural Resources, the California Department of Fish and Game (DFG) Office of Spill Prevention and Response (OSPR) has completed review of the June 14, 1999 "Draft Validation Study Report, Parcel E, Hunters Point Ship Yard, San Francisco, California", prepared for the U.S. Navy by Tetra Tech EM Inc. San Francisco office and Levine-Fricke-Recon Inc., Emeryville office. As noted below, DFG has several concerns with this document.

Background

Parcel E at Hunters Point Shipyard (HPS) is approximately 135 acres of shoreline and lowland coast containing ruderal habitat, non-native grassland, and a combination of freshwater wetlands, saline emergent wetlands, and intertidal habitat. A screening level ecological risk assessment (ERA) conducted on this Parcel in 1997 demonstrated a potential increase in risk to ecological receptors from contaminants on site. To address some of the uncertainties associated with the findings in the ERA, the Navy conducted a Phase 2 ERA Validation Study. The work plan for this study was reviewed by DFG and the results presented in a letter from Gerald Chernoff of DFG to Valerie Heusinkveld of the Department of Toxic Substances Control dated July 31, 1998. The draft Validation Report (VR) has now been submitted for regulatory agency review and was the subject of a meeting held between interested parties on July 15, 1999. The purpose of this letter is to present the results of DFG's review of the Validation Study report in light of the discussion at the July 15 meeting.

General Comments

1. The onshore habitat at Parcel E is of moderate quality and isolated from good wildlife habitat. Consequently, this site is not considered a high priority site for terrestrial receptors by DFG. In contrast, the aquatic environment offshore is considered high priority. DFG has concerns regarding the potential for migration of

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contaminants from Parcel E to the offshore aquatic environment and selected aquatic receptors, either by surface runoff or subsurface flow. To address this concern, DFG requests that the Navy provide an explanation of when and how this potential will be addressed.

2. DFG does not agree with the rationale used to derive protective soil concentrations (PSCs) for some of the chemicals of ecological concern at Parcel E. The major approach seems to have been re-evaluating and revising TRVs to justify higher PSCs. As detailed in the specific comments below, this is not acceptable to DFG. The Region 9 TRVs were derived in a consensus process that involved the Military, and should be thought of as a standard. This does not mean that the TRVs can not change with new data, but rather, that until new data are presented and evaluated in a consensus process, the original TRVs should be used.
3. The PSC for lead was a major topic of discussion at the July 15 meeting. Rather than try to alter the TRV, which should be a standard that is not easily changed (see comment 2 above), it was agreed that there should be a reevaluation of the intake for the mouse. This reevaluation should include: a consideration of the type of lead most likely occurring at the site vs. the type of lead used in the toxicity studies from which the TRV was derived; the relative absorption of the different types of lead; and the estimation of an absorbed dose vs. an ingested dose. Considering these variables, it should be possible to derive a toxicologically more relevant intake value for lead. A memorandum detailing this approach has been prepared by Dr. James Polisini of DTSC, with concurrence from Dr. Clarence Callahan of the Region 9 U.S. EPA and Dr. Gerald Chernoff from DFG.
4. Once a more realistic intake value is derived as discussed above in comment 3, it can be compared to the different effects levels for lead to predict the type of adverse effect which might be expected at that level of intake. Using this approach, it should be possible to derive PSCs that can be justified by the regulatory community.

Specific Comments

1. Section 2.0, pg. 2-1, para. 1, ln. 7: It is noted that freshwater wetlands were not evaluated in the VR because they were not addressed in the original ERA. Please provide a short discussion, including a justification, on why this habitat was not evaluated in the ERA. At the meeting on July 15 it was mentioned that these wetlands would be covered with a cap. If this is correct, this should also be mentioned.
2. Section 2.0, pg. 2-2, para. 1, ln. 7: A short discussion of why the wetlands are being redelineated should be provided. As the State Trustee, DFG will be reviewing the delineation and this review will be expedited if DFG participates in the field

assessment. The DFG Wetland Policy must be considered in determining mitigation in the event the wetland area is capped as indicated at the July 15 meeting.

3. Section 2.1.2, pg. 2-4, para. 1, ln.4: Further justification is needed for eliminating the presence of burrowing owls in Parcel E. This should include the survey techniques used so that it can be determined if DFG survey guidance was followed. As indicated in the text, burrowing owls usually nest in burrows left by ground squirrels or other burrowing animals. These areas are generally surrounded by bare soil or short grass, conditions that exist at Parcel E. The statement in the text implying that burrowing owls are wetland dependent is incorrect and should be changed. Wetland areas are not compatible with burrowing owl nests.
4. Section 5.2, pg. 5-3, para. 2: Ranking chemicals by HQ is not appropriate or correct. The HQ is a measure of the exceedence of a non-toxic dose, and as such, says nothing about the potency or toxicity of doses above the non-toxic level. Potency is a function of the dose-response relationship. For a chemical with a very steep dose-response (chemical A), a small incremental increase above the non-toxic dose could result in high levels of toxicity. Conversely, for a chemical with a shallow dose-response (chemical B), it would take a very large increase above the non-toxic dose to obtain the same high levels of toxicity observed with chemical A. In this example, an HQ of 2.0 for chemical A would represent greater toxicity than an HQ of 10.0 for chemical B. Based on this line of rationale, which is a basic principle of toxicology, DFG rejects the ranking approach, and requests that it be removed from the document.
5. Section 6.1, pg. 6-1, para. 1 & 2: There is a basic contradiction in these two paragraphs over the meaning of "assessment endpoint". In the first paragraph it is defined as the environmental value to be protected such as habitat, survival, growth, or reproduction. In the second paragraph it is defined as a receptor species. DFG agrees with the first definition. The receptors are not assessment endpoints, but rather, are used to evaluate the measurement endpoints.
6. Section 8.0, pg. 8-1, para. 1, ln. 4: The reference to Figure 10 is incorrect. The proper reference is Figure 15.
7. Section 9.1, pg. 9-1, para 2, ln. 2: Please clarify the meaning of "effective dose" in this sentence. It appears that it is the intake value.
8. Section 10.1.1, pg. 10-2, para. 2: It is not clear from the text whether or not the Whitaker and Wolf studies were used to estimate ingestion rates. Please clarify exactly which databases were used.
9. Section 10.1.1, pg. 10-2, para. 3: From the text, it appears that seeds (43%), leaf and stem (4%), and invertebrates (7%) comprise about 54% of the stomach contents of a mouse. These values were then used to calculate ingestion rates for

each of the three types of food items, which were 0.0019, 0.00018, and 0.00031 kg/day for seeds, leaf and stems, and invertebrates, respectively. Adding these intakes together gives a value of 0.00239 kg/day which is about half the mouse ingestion rate cited at the bottom of page 10-1. It appears that only 54% of the stomach contents was considered in calculating the total ingestion rate from seed, leaf and stem, and invertebrates, which helps explain the discrepancy in intake rates on the two pages. What is needed is an accounting of the 46% of the stomach contents that was not classified as to food type. At the meeting on July 15, it was agreed that the Navy would address this issue and make any necessary corrections.

10. Section 10.1.1, pg. 10-2, para. 4: The total ingestion rate for juvenile mice cited from the literature is 0.0019 kg/day, while the ingestion rate from seeds, stems and leaf, and invertebrates is 0.0010 kg/day. As noted in comment 9 above, this discrepancy must be corrected.
11. Section 10.1.2, pg. 10-4, para. 3: The stomach contents accounted for 88% of the food items considered in the food ingestion partitioning between invertebrates, reptiles, and mammals. Consequently, 12% of the contents were not accounted for. The total ingestion rate for the Kestrel cited from the literature was 0.035 kg/day while the total from the three food sources was 0.15 kg/day. This doesn't make any sense and indicates there is a typographical or calculating error, most likely in the ingestion rate for invertebrates which was given as 0.13 kg/day. Please clarify per comment 9 above.
12. Section 10-2, pg. 10-7: Based on the models presented in the text, it appears as if the food ingestion rates will be low for the adult and juvenile house mouse because only 54% of the stomach contents were considered in calculating site-specific food ingestion. In contrast, the intake for the kestrel will be high because of the typographical or calculation error. Please provide assurance that the total ingestion rate was used in these models.
13. Section 10-2, pg. 10-8, para. 2, ln 5: Please expand and clarify how ingestion rates from prey items were calculated when site-specific data were missing. It is not clear why the ingestion rate for the food item was divided by two, and how prorating proceeded from there.
14. Section 11.1, pg. 11-1, para. 1, ln. 2: Please explain the meaning of "low adverse effects on test subjects (high TRVs)". The high TRVs are based on clear effects levels, so the meaning of low adverse effects is unclear.
15. Section 11.2, pg. 11-1: It should be mentioned in this section that a recent study has been published which derived bird and mammalian allometric scaling factors using a data base that included environmental chemicals (B.E. Sample and C.A. Arenal, *Allometric Models for Interspecies Extrapolation of Wildlife Toxicity Data*, Bull. Environ. Contam. Toxicol., 62:653-663, 1999). While it may be too late in the

process to use these new scaling factors, their existence should at least be acknowledged.

16. Section 11.3, pg. 11-3, para. 4: The discussion of minimal adverse effects and greater likelihood of adverse effects with increasing HQ's is incorrect and should be removed from the document. See comment 4 above for details.
17. Section 13.1.3, pg. 13-2, para. 1: The discussion on the lead low TRV is of little consequence, since the study upon which it is based is legitimate, and was agreed upon by consensus of regulators, contractors, and the Navy. As discussed at the meeting on July 15, discussions of lead should be focused on the intake rather than on the TRV. See General Comment 3 for further details.
18. Section 13.1.3, pg. 13-2, para. 2: This paragraph is no longer correct given the publication of a new set of allometric scaling factors using environmental agents representative of contaminants in Parcel E soils. See comment 15 above for details.
19. Appendix A, Section 2.0, pg. A-2, para. 2, ln. 10-15: The logic for reducing the SUF for the American Kestrel is based on several assumptions that are of questionable utility. Please clarify why foraging by both males and females would reduce the SUF, and please provide a reference to support the assumption that kestrels spend no more than 50 percent of the year at Parcel E.
20. Appendix A, Section 3.3, pg. A-5, para. 1: At other sites, the Navy, with concurrence of the regulators, has used background as the protective level when the soil concentration of an inorganic contaminate associated with an HQ greater than 1.0 is less than background. Please provide an explanation of why this approach was not used at Parcel E.
21. Appendix A, Section 3.3, pg. A-5, para. 3: Comparing multiple no-effect levels for a toxicant is of little value unless there is a consideration of the endpoints measured. For example, what is the meaning of a wide range of no-effect levels if one endpoint is a sensitive physiological change, and the other is the LD-50? If this paragraph is to be retained in the document, much more thought should be given to its presentation.
22. Appendix A, Section 4.0, pg. A-10: DFG has some concern with the proposed protective soil concentrations (PSC). Using the data presented in Figures A-1 through A-6 of the report, the number of times an HQ greater than 1.0 was exceeded at contaminant concentrations less than the PSC was compared to the total number of observations below the PSC. As shown in the Table below, of the 20 HQs calculated for cadmium, all were less than 1.0 at concentrations below the PSC of 4.19 mg/kg soil. This demonstrates that at a contaminant concentration less

than the PSC, HQ's greater than 1.0 would not be expected. In contrast, 27 of 36 HQs calculated for lead were greater than 1.0 at soil concentrations below the

Analyte	HQ>1/<PSC
cadmium	0/20
copper	5/19
lead	27/39
nickel	22/36
Selenium	8/34
zinc	4/24

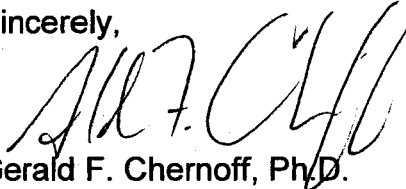
PSC of 1050 mg/kg. This suggests that at levels below the PSC, HQ's greater than 1.0 will be observed more than 50% of the time. This is not acceptable. Please see General Comments 2 and 3 above for possible alternatives.

Conclusion

As discussed in detail above, DFG's major concerns with this VR are the lack of information on potential contaminant migration off site to the aquatic environment, and the method used to derive PSCs. To address these concerns, it is recommended that the Navy prepare a response to comments which can serve as a focal point in preparing a revised VR document.

DFG appreciates the opportunity to review the Validation Report for Parcel E and looks forward to receiving the next version with the recommended revisions. If you have any questions regarding this review, or require further details, please feel free to contact me at (916) 324-6450, or e-mail address bchernof@ospr.dfg.ca.gov. I will be happy to discuss the results of this review with you and provide further details as needed.

Sincerely,


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Reviewer: Susan Ellis
Environmental Specialist IV

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July 26, 1999
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